Service Date: November 19, 1979

BEFORE THE PUBLIC SERVICE COMMISSION
DEPARTMENT OF PUBLIC SERVICE REGULATION
OF THE STATE OF MONTANA

IN THE MATTER of the application by) DOCKET NO. 6618
MONTANA POWER COMPANY to adopt) ORDER NO. 4521b
increased rates for natural gas service) PHASE II
in the State of Montana.

APPEARANCES

APPLICANT:

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INTERVENORS:

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FOR THE COMMISSION:
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B BEFORE:
GORDON E. BOLLINGER, Chairman

CLYDE JARVIS, Commissioner
THOMAS J. SCHNEIDER, Commissioner
JAMES R. SHEA, Commissioner
GEORGE TURMAN. Commissioner

FINDINGS OF FACT

1. Following a motion by the Montana Consumer Counsel, the Commission issued an amended procedural order on January 24, 1979 which established Phase II in this docket for consideration of rate structure issues. All other issues in the docket were decided in Orders No. 4521 and No. 4521a.

2. A prehearing conference was held March 23, 1979, at which rules for the disposition of this case were formulated. The public hearing for Phase II was scheduled to begin on July 10, 1979. A procedural order was issued on March 27. 1979.

3. Between July 10th and July 13, 1979, a duly noticed public hearing was held in the Senate Chambers, State Capitol, Helena, Montana. Testimony was received from witnesses testifying on behalf of Montana Power and the intervenors; public witnesses were also heard.

4. The Montana Consumer Counsel has participated on behalf of utility consumers in Phase II of this Docket since the inception of these proceedings .

Cost of Service and Rate Design

Testimony and Analysis

5. The testimony concerning cost of service can be broadly separated into two contrasting philosophies: (1) a fully allocated embedded cost approach based upon a traditional Seaboard allocation formula; and (2) a volumetric costing method based upon marginal cost, economic

efficiency, and conservation arguments. An inverted rate design for residential consumers was proposed as an inverse elasticity refinement of the volumetric approach by one intervenor.

6. Applicant presented a traditional cost of service study performed by Ebasco's Mr Sutherland, which updated a 1973 base study. Of particular significance respecting the contested issues, this study utilized the so-called Seaboard allocation formula to assign cost responsibility for production supply and transmission facilities. Although Mr. Sutherland classified these facilities as exclusively demand related, he recognized the joint role of commodity and demand in these costs by generally allocating such costs to the various classes on the basis of 50 percent peak demand and 50 percent commodity participation. (Exh. 62, pp. 8-10)

Mr. Sutherland concluded that while other allocation methods could be used and have been used in other jurisdictions the Seaboard 50/50 method was the most appropriate method for the Montana Power system.

I believe that the 50/50 method, which is often referred to as the Seaboard method, is the more appropriate means of demand allocation for this utility. Traditionally, gas utility rates have always employed fixed cost allocations in their costing analysis. Production and transmission fixed costs were arbitrarily assigned 50 percent to demand and 50 percent to commodity. in some cases, these costs were more heavily weighted toward demand to consider greater cost responsibilities for customers desiring priorities during peak periods. In recent times, however, there has been a tendency to weight the costing more toward the commodity component, as in the United method which assigns 25 percent to the demand component and 75 percent to the commodity component. This trend may have some merit where systems can no longer satisfy the total firm requirements of their customers, but, in The Montana Power Company's case, this is not true. Montana Power Company has sufficient reserves and storage capabilities to utilize the design capacities of their system and, therefore, the costing method should reflect capacity or demand responsibility to a significant degree. (Exh. 62, pp. 11-12)

7. Mr. George Hess, one of two witnesses appearing for the Montana Consumer Counsel, generally endorsed the cost of service method employed by Mr. Sutherland. (Exh. W, pp. 6 and 7)

8. Mr. Elmer Moke, testifying on behalf of the Anaconda Company, similarly supported that basic and traditional cost of service method. Mr. Moke, however, criticized the resulting pricing technique utilized by Applicant's Mr. Heidi.

9. Mr. Sutherland provided the results of his cost of service study in Exhibit G3. The cost of service results generally illustrated the comparative rate of return by customer class under present rates and three possible .
methods of applying the requested revenue increase. The results were provided for both the Seaboard 50/50 method and, for illustrative purposes, the United 75/25 method. Mr. Sutherland concluded that the cost of service results and the proposed increases were consistent:
The relations between the relative rates of return of the major classes of service approximate those determined in other studies and indicate that the distribution of required revenues among the classes is fair and equitable. (Exh. 62, p. 13)

10. Mr. J. W. Heidt, MPC's pricing witness, proposed that any increase be spread to the various classes in a dual manner: gas expense on a volumetric basis and all other costs on a uniform percentage basis. This recommended approach to applying the increased revenues appears in Mr. Sutherland's cost of service study as Schedule 5, Exhibit 63 for the 50/50 Seaboard allocation. Mr. Heidi explained his rationale for that proposal as reflecting "a continuation of the allocation methodology employed by the Commission in Order 4350D." (Exh. 31, p. 15) He continued:
I considered interclass and intraclass or rate schedule pricing modifications due to the increased revenue requirement, but rejected such modifications. The data available was insufficient to support a conclusion that the distribution of this revenue requirement under the existing total revenue structure is unduly discriminatory. Absent such data, I felt I could not justify either an interclass or intraclass revenue reallocation which departed from the Order 4350D total rate structure. " (Exh. 31, p. 16)
Mr. Heidi emphasized that the proposed pricing was not based upon cost of service methodology
I did net, as my testimony states, use a cost-of-service methodology for developing the final rate structure.... I do testify that I think the end result of any rate structuring and the allocation of cost

produce a rate that I do not consider unduly discriminatory. (Tr. 51)

The contrasting positions with respect to the appropriate cost of service method and rate design were presented by Dr. J. W. Wilson and Dr. Thomas Power.

11. Dr. J. W. Wilson, a witness for the Montana Consumer Counsel, testified concerning the proper basis or designing economically efficient natural gas rates.
Gas utility rates should reflect economic costs. System costs should be allocated on the basis of what it actually costs to provide service to particular consumers at particular times. The marginal cost of gas sup: should be a particularly important consideration in this regard. (Exh. X, p. 6) (Emphasis added)
In discussing the historic and present natural gas situation, Dr. Wilson emphasized the need to depart from traditional costing and pricing methods.

Given today's more limited gas supplies and high incremental gas costs, these conditions obviously no longer hold. Today's gas utility rate structure problems are greatly compounded by a long term absolute limitation of the basic gas resource. In view of that development it is appropriate to adopt largely volumetric rate structures for natural gas service. (Exh. X, pp. 12-13) (Emphasis added)

By allocating costs to consumption rather than maximum demand, volumetric pricing tends to promote maximum conservation of the limited natural resource (natural gas) and treats existing pipeline capacity as a sunk cost component which has less long-run need for economic rationing. (Exh. X, p. 14)

Dr. Wilson testified that volumetric pricing of natural gas is, therefore, conceptually consistent with peak load and time-of-day pricing in electric utility service in terms of promoting the overall economic efficiency of the system. After discussing the 1952 development of the Atlantic Seaboard formula, proposed by Applicant, and the United method, Dr. Wilson stated: .

The volumetric cost allocation approach which I propose in this case carries the Seaboard method one step further by requiring full abandonment of the demand responsibility concept. (Exh. X, p . 18)

12. Dr. Wilson presented an alternative rate design in which the full cost of service would be recouped through a volumetric energy charge rather than including a customer service charge in order to produce an energy rate more nearly approximating the marginal cost of incremental gas supply. This result would promote economic efficiency and conservation. (Exh. X, pp. 58-59)

13. Dr. Wilson's firm is principal consultant in a project funded by the U. S. Department of Energy (DOE) involving full scale implementation of volumetric gas rates in Minnesota. Dr. Wilson testified that volumetric gas rates have been a central feature of DOE's current program to fund gas and electric rate design projects. DOE has advanced essentially the same rate design as proposed by Wilson in its interventions under the federal Public Utilities Regulatory Policy Act. (Exh. X, pp. 5-6; 18-19)

14. Dr. Wilson suggested as 6 variation from his volumetric rates, a seasonal differential to reflect costs of storage. (Exh. X, p. 59)

15. Dr. Thomas Power, University of Montana economist testifying on behalf of District XI Human Resource Council, advocated a basic volumetric costing and pricing approach similar in most respects to that proposed by
Dr. Wilson. He went on to advocate a seasonal rate differential which he characterized as a "lifeline. " Dr. Power presented two methods of structuring rates to produce a rate differential or "lifeline, " a lump sum
discount and a 25 percent seasonal reduction on the first 15 Mcf of monthly residential consumption. Dr. Power characterized the existing and proposed MPC rate structures as" the result of piecemeal adjustment to changing economic conditions over a fairly long period. Because of this, they have little economic logic to them. They are tied primarily to the past. " (Exh. DD, p. 27) While acknowledging that rate stability as emphasized by MPC's Mr. Heidi is a

valid consideration, Dr. Power stated:

However, given that natural gas supply and demand conditions have changed dramatically since the early 1970's, it is time to totally restructure the rates to reflect not the past but current and future conditions. (Exh.-DD, p 27) (Emphasis added)

As an example of the "mixed bag" of the existing structure, Dr. Power pointed to the contrast between the flat residential rate, implemented in the Commission's Order No. 4350D based upon a determination that there was no cost basis for the traditional de lining block schedule, and the steeply declining block non-residential structure. "The cost questions raised about the declining block structure for residential users certainly can be raised about the other rate structures too. There is no cost evidence supporting the existing structures. They are historical oddities which have slowly been evolving in the direction of flat rates." (Exh. DD, p. 27)

16. Under cross-examination by Commissioner Turman respecting the comparative conservation potential of his proposal and that of Applicant, Dr. Power surmised that the marginal commodity cost of Canadian gas would be $2.45 "by the time you people rule." Consequently, he concluded:

[T]he rates as proposed by Applicant, I think, do very little to encourage conservation. Now, I should quickly add that my rate or the rate that I have proposed doesn't do all that much imposing a very small move away from the current rate structure in the direction of, if you want, creeping slowly towards marginal costs. (Tr. 485-486)

17. Rebutting criticism that his marginal cost based approach was somehow inferior to the "actual cost" approach of Applicant, Dr. Power stated:

As I said there is nothing any less actual that [about] a marginal cost than this calculated rolled-in average cost of service average cost. In fact to the extent that one focused heavily on a commodity cost in calculating marginal cost, one avoids the arbitrariness of figuring out how to spread the fixed rate base, tile fixed investment the company has made. (Tr. 487)

Dr. Power explained that neither Applicant nor Mr. Sutherland claim to have determined the actual cost of serving each class but have relied upon primitive linear regression analysis and judgment calls to allocate costs.

So, marginal costs could be far more objective and straight forward if one wanted to say let's just look at marginal commodity cost at least is something to start out with. We know that at least getting additional gas is going to cost what it costs to go get another contract from a Montana explorer or a Wyoming explorer . We know if we can't get there that it is going to cost what the coal gasification plant costs or what Canada will sel] it to us for and we do not know what that is. We know that the company in fact paid that price, so we have an objective measure of marginal cost commodity cost. (Tr. 488)

Dr. Power then proceeded to apply a basic marginal cost argument, constrained by the revenue requirement as determined by the Commission, in support of a volumetric costing and pricing recommendation.

A rate structure tied to volume of gas consumed with, possibly, tail blocks reflecting the incremental cost of new gas rather than the rolled-in average cost, would do this far more accurately than further adjustments of the current rate structure tied to past investments. (Exh. DD, p . 29)

19. Dr. Power emphasized the cost of current and future gas supplies as the predominant factor in increased utility costs. Power criticized the traditional embedded cost methods:

Tying the rate structure to "causal" allocation of this increasingly under-utilized past investment would be silly. MPC's future investments will be heavily in gas supply, not transmission. MPC's Natural Gas: A Discussion of Demand, Supply, Economics 1931-2000 prepared for this Commission in Spring of jest year shows possible investments over the period 1988-1990 in exploration, development, reserve purchase, and gasification technology ranging as high as

$749,000,000. These investments would seek to guarantee a supply of natural gas to the MPC system past the turn of the century. (Exh. DD, p. 29)

In the late sixties, natural gas supply contracts cost MPC six cents per MCF. By 1977 these costs had risen to as high as $2.20 per MCF. That is a thirty-sever. fold increase in money terms or a nineteen fold increase in real (inflation subtracted out) terms.

MPC projects that by 1990, the average cost of gas will range from $5.30 to $9.96 per MCF depending upon whether Montana/Wyoming resources can be tapped or Arctic and coal gasification have to be turned to. In 1978 dollars these future costs would range from $2.84 to $5.24 per MCF. In the actual 1977 operations, MPC gas costs averaged $1.14 per MCF. In the proposed gas source mix for the 1977 test year, the average cost of gas is $1.60 per MCF. Thus in real terms, the future cost of gas will be 2.5 or 5.6 times the actual 1977 gas costs and 1.8 to 3.3 times the test year average gas costs. The point is that gas costs, according to MPC, are going to continue to rise steeply. This cannot and should net be hidden from the large industrial users. Faced with gas costs two to three times what it now costs (in real terms), some industrial users will rationally cut back their consumption and others will switch to other energy sources. (Exh. DD, p. 31)

20. Substantial additional testimony was received regarding the current and future cost of incremental gas supply. Dr. Wilson characterized the "current" Canadian border price of $2.30 per Mcf as the short run marginal cost of gas supply (Tr. 195) . Mr. McElwain, then, advised the Commission of the Canadian decision to raise that border price to $2.80/Mcf on August 11,]979 (Tr. (i45). In view of the subsequent Canadian border price

increase to $3.45 per Mcf effective November 3, 1979, even Dr. Power's testimony concerning the long term incremental commodity cost is virtually outdated today. (Rate increases have been granted to Applicant in both the $2.80 and $3.45 per Mcf border price increases).

21. Dr. Charles Phillips, appearing for Applicant, supported the basic economic theory advanced by Drs. Wilson and Power in his testimony respecting the appropriate basis for costing and pricing natural gas.

I have no problem from an economic point of view with the concept of either marginal or incremental cost pricing... I have no problem with the concept. The implementation may cause serious problems. But, should we move in that direction, yes sir. (Tr. 623)

When asked whether or not it would be better to continue basing utility prices on embedded cost of service studies rather than marginal costs, Dr. Phillips responded:

I think utility prices have got to move towards incremental pricing. (Tr. 634)

In response to questions about the appropriateness of the Seaboard Formula in view of the foregoing, Dr. Phillips stated:

I have long had difficulty with the Seaboard Formula as an economist. (Tr. 641)
Finally in this regard Dr. Phillips recommended that:

The long-run incremental cost concept should be the guide in future rate design, although its implementation raises a number of critical difficulties. This concept, moreover should apply to all customers and not simply to industrial users. (Exh. 57, p. 18)

22. Dr. Paul Polzin, University of Montana economist, also appearing for Applicant, concurred that it is appropriate for regulators to be mindful of "economic theory . . . which incidentally would include marginal analysis . "
(Tr. 581)

23. A considerable amount of testimony was focused upon the issue of appropriate pricing to the interruptible industrial class . Questions concerning the long term availability and the price of natural gas were factors in the overall reduction in the industrial market during recent years. The testimony of witnesses for the Anaconda Company, Mssrs. Made, Lanou, and Hercod, expressed concern that rate design proposals which tended to increase the industrial price could hasten

industrial conversion to other energy sources. Mr. Hercod testified that their conversion cost studies showed:

(1) Based upon a 12 percent return on its investment and a delivered coal cost at $20 per ton in 1981, the "break even point" for conversion to coal would be $2.57 per Mcf.

(2) Based upon a 15 percent rate of return and a delivered coal cost of $34 per ton, the "break even point" for conversion to coal would be $3.39 per Mcf. (Tr. 308, 309)
Oil we, not considered a viable alternative because of its questionable availability
.

24. Mr. Lanou suggested that " [t]he Commission could set rates below cost for the industrial customers in order to induce them to stay on the system. " (Exh. AA, pp. 16, 17)

25. Mr. Tilman, Stauffer Chemical Company plan, manager, testified in much the same vein. Stauffer had performed and was performing economic studies to evaluate the viability of conversion to coal as its principal source. After conceding that he was not a utility cost of service expert, Mr. Tilman stated that it was not the methodoIogy but the resulting price which was key to possible conversion from natural gas. (Tr. 387) Oil was not considered a viable alternative because of its doubtful availability. (Tr. 380)

26. Dr. Phillips recommended:
Until the Federal Energy Regulatory Commission decides how to implement the incremental pricing provisions of the Natural Gas Policy Act [NGPA] of 1978, caution also should be exercised in making drastic revisions in present rate design for industrial users. (Exh. 57, p. 17-18)

27. Mr. George Hess recognized that the NGPA requires the FERC to implement incremental pricing of industrial boiler fuel with possible extension of such pricing to other industrial loads. However, Mr. Hess urged caution in pricing natural gas to industrials to avoid additional conversions to other fuels. Mr. Hess emphasized the negative impact of declining industrial interruptible loads upon Applicant and its remaining customers. The fixed costs associated with utility facilities and take or pay contracts are transferred to the remaining customers as interruptible markets decline.

28. Substantially different perspectives regarding the issues of industrial pricing and conversion to alternative fuels were presented by Drs. Wilson and Power. Dr. Wilson testified that:

The National Policy perspective probably best served to the extent that substitution (of fuels) is achieved by moving to substitutes that are domestically produced, such as coal. (Tr. 197)

Based on what happened in the last eight or nine years there is no doubt in my mind that gas consumption today is going to contribute to gas prices tomorrow. (Tr. 228)

[T]o urge substantial amounts of industrial gas consumption today on the basis of short-term economic considerations such as the carrying cost of investment of the pipeline ignoring the likely impact that gas consumption in large quantities by industrial customers today is going to have on supplies and prices three or four years from now is shortsighted and likely to arrive at a solution that is quite contrary and detrimental to the long-term public interest. (Tr. 228)

29. Dr. Power testified directly on the issue of industrial pricing, possible conversion, and the long term impact of those actions.

To price a commodity or a resource that an industry uses at its cost, its marginal cost will simply force industries to use those commodities in an efficient way. That should lead to an improvement in efficiency of overall economy not to an economic chaos or economic collapse of the industries involved. So, I don't see any serious threat to jobs. Even the industries who have testified here have not threatened to leave Montana or even to cut back production. They have threatened to convert to cheaper form of energy and as I have said in my rebuttal testimony, if they do, that's not a tragedy to the Montana economy or to the national economy. Industries faced with a real economic cost of a scarce natural resource will have made a rational decision to move to a less scarce resource. (Tr. 475-476)

30. Dr. Power further summarized his response to contentions that the proposed volumetric rate structure and lifeline refinement will drive industrial customers from the system, leaving the remaining customers to face skyrocketing rates:

a. Some industrial (as well as residential and commercial) users have been leaving the natural gas system ever since gas prices started rising and supply became uncertain. These consumers saw cheaper and,'or more certainly available fuel resources available to them and took advantage of the opportunity. This represents a rational resource reallocation which conserves an increasingly scarce and costly resource.

b. Gas costs will continue to rise significantly. Thus we can be certain that no matter what rate structure is adopted, more of the industrial users will leave the system.

c. Keeping such customers on the system in the face of rising gas supply costs by selling them gas at special low rates while investing hundreds of millions of dollars in new supply will, in the end, saddle residential users with even higher costs

d. Many industrial users will not leave the natural gas system because air pollution problems and the alternative energy conversion costs are far too great. They are likely, however, to use the threat of abandoning the system to obtain favorable low prices from this Commission. (Exh. DD, p. 30)

31. The Commission finds that the fundamental economic arguments in support of the volumetric costing and pricing proposals of Dr. Wilson and Dr. Power, bolstered by the testimony of Dr. Phillips, are persuasive and constitute the best evidence of record on these issues. The Commission finds that "it is time to totally restructure the rates to reflect not the past but current and future conditions" -- to abandon the "piecemeal adjustment" to an inappropriate cost of service methodology. (Finding 15)

32. While Drs. Wilson and Power rely heavily upon marginal cost in developing their similar volumetric pricing theory and arguments proposals, neither performed a long or short run marginal or incremental cost study.
Mr. Elmer Made recognized that matter:

> A By that I mean that Dr. Wilson in his exhibits supporting hi; volumetric proposals in his rebuttal testimony based it on calculations of cost figures that tie in with the actual cost of the company and not with any separate assumed marginal costs.
>
> 17. So, really his proposal is not a marginal cost proposal.
>
> 18. That is my understanding, yes. (Tr. 266)

33. To be sure, however, the volumetric cost analysis and the inverted rate proposal by Dr. Power (subsequently detailed) tend toward prices which more nearly reflect marginal commodity costs than the proposal of Applicant. Dr. Wilson correctly characterized his proposed volumetric method as a "transitional" technique designed to promote an efficient market accommodation to the long term gas supply shortage problem." (Exh. X, p. 16) Likewise, Dr. Power recognized the "creeping slowly towards marginal costs" nature of his volumetric proposal. (Tr. 485-486) Transmission costs were considered sunk costs and were in effect allocated on a volumetric basis as part of the composite cost of gas.

34. Consequently, to the extent that Drs. Wilson and Power have not calculated and substituted a

separate long term marginal or incremental cost in place of the embedded average gas cost, the criticisms of Mr. Made about detrimental futuristic results should be alleviated. Likewise, because the moderate volumetric approaches do not even impose the long run incremental commodity cost on any customer class, the Commission finds that the concerns of Dr. Phillips regarding implementation are appropriately minimized. To the extent that these volumetric costing approaches did not generate excess revenues, the judgmental apportioning of revenue reductions was avoided. By such statements, however, the Commission does not suggest that had a full long run incremental cost study been presented those "concerns" would have caused rejection of that study.

35. Mr. Made correctly observed that Dr. Wilson's cost of service study had used actual 1977 sales figures instead of the adjusted and normalized figures. Mr. Made, therefore, recalculated Dr. Wilson's volumetric rate design according to the allocation parameters established by Wilson. The Commission finds, based upon the evidence of record, that three additional adjustments are essential to correctly and consistently apply the approved method to the facts. First, the industrial interruptible market as established in Phase I of 14.364 Bcf at 14.9 psia should be substituted for the 13.655 Bcf used by Mr. Made. (Tr. 290) Second, in order to correctly allocate cost responsibility to the various customer classes, the sales by class must be considered at an equivalent pressure base. This matter was raised by a number of witnesses throughout cross-examination. (See Heidi Tr. 95, 122; Made Tr. 286-301; and Power, Tr. 470)

36. Finally it was necessary to adjust the total revenue requirement and its components to reflect the approved revenue from Phase I, Order 4521a. The revised components track the cost of service technique employed by Dr. Wilson and recalculated by Mr. Made. The adjusted cost of service study and resultant customer class rate design is provided below.

Annual Revenue Requirement/Cost of Service Study

	Storage	Customer	Distribution	All Other
Operation and Maintenance	321,855	3,477,404	3,444,118	80,060,623
Depreciation	184,700	552,588	1,525,601	3,189,111
Non-Income Taxes	75,592	581,863	1,105,600	1,742,945
Property Loss		72,000		
Return and Income Taxes	2,275,572	1,507,261	2,156,467	8,907,700
Totals	2,929,719	6,119,116	8,231,786	93,900,379

The class sales adjusted to 14.9 psia for purposes of allocating cost responsibility are shown below:

Utility	6,319,567 Mcf per MPC wksht 14
Interruptible	14,364,000
Firm	21,326,822
	42,010,389 Mcf at 14.9 psia

37. Pursuant to the alternative volumetric proposal of Wilson and recalculated by Mr. Made the cost components are allocated to the classes in the following manner: storage to firm and utility, customer and distribution to firm and industrial, and all other costs volumetrically to all classes.

Storage	Distribution	Customer	All Other	Total
2,929,719	8,231,786	6,119,116	93,900,379	
				111,18 1,000

Utility	609,734	-	-	14,124,495	14,794,229
Interruptible	-	3,312,965	2,464,700	32,106,418	37,884,083
Firm	2,259,985	4,918,821	3,654,416	47,669,466	58,502,688

38. Provided below are the comparative volumetric rates calculated on both an equivalent pressure base and a sales base (or rate schedule basis).

Utility $14,794,229/6,319,567 Mcf = $2.334/Mcf

Interruptible $37,884,083/14,364,000 Mcf = $2.637/Mcf

Firm $58,502,688/21,326,822 Mcf = $2.743/Mcf

F

Firm $58,502,688/24,551,000 Mcf = $2.383 @4 oz.

The Commission recognizes that these figures as well as those in Findings 36 and 37 are approximations and may have to be adjusted.

39. The Commission finds that the new class designations (firm, interruptible, utility) based upon the volumetric costing proposals of Drs. Wilson and Power are appropriate and that the revenue responsibility established for those classes is just and reasonable. The volumetric costing and pricing method adopted here is substantially similar to that presently used on the MDU system,

resulting from Docket No. 6567, Order No. 4467.

Residential Lifeline Rate Structure

Testimony and Analysis

40. Dr. Power proposed volumetric costing and pricing as the core of basic rate design. Dr. Power further proposed adoption of a residential "lifeline" structure in the form of a simple inverted rate. Under his proposal a basic quantity of natural gas, which he calculated as necessary, would be priced at a 25 percent discount during the winter months. The revenue loss from this discount would be spread to all classes, including the non-lifeline residential volumes, on a volumetric basis.

Dr. Power described the basis for such a r ate design in a variety of ways:
As an economist I come to a life-line rate as a method of making marginal cost pricing workable within the context of a regulated industry where profits are regulated so that the basic argument is the marginal cost argument with the life line chosen as a way of keeping the profits that the utility earns within the required revenue as determined by the Commission.

Dr. Power described that character of natural gas and its use by residential customers as a basis for his lifeline proposal.

Natural gas is a necessity. In the short run, individuals have no alternative as to whether they wish to purchase it and they have no alternative as to from whom they purchase it.

It is this "necessity" or "merit want" characteristic which brings the price of natural yes to the PSC's attention in the first place. It is an important economic fact or characteristic which cannot be casually ignored. There arc solid reasons why we regulate natural gas prices but not movie theater prices or lettuce prices.
This character of natural gas as a necessity has another important aspect. The basic quantities of natural gas consumed for these necessary functions are not very sensitive to price. No matter how

high the price, in the short run not much less can be purchased. No matter how high the price, not much more (for those functions) is likely to be purchased. In technical terms, the demand for natural gas for these basic uses is inelastic .

This inelasticity of demand has been used in t} e past against residential users. In earlier periods, gas utilities sought maximum growth in the use of gas by discriminating against users whose demand was inelastic (small residential and commercial users) in favor of those users whose use was sensitive to price, those users who had alternative fuel supplies, the large commercial and industrial users.

This same inelastic, small residential demand now opens up the possibility that the rate structure can he modified to allow the pursuit of severe social objectives simultaneously. (Exh. D!), p. 21-22)

Dr. Power continued:

To the extent that low-income consumers use less gas than high income consumers, such a rate structure lowers the rates faced hy those with the lowest ability to pay and raises them for those with both the greatest ability to pay and the greatest flexibility in reducing consumption. In that sense, it pursues an equity goal.

In addition, by raising the rate on larger users and lowering the rates for small users, it rewards conservation. It also makes the rates paid by almost all consumers for the last units consumed more accurately reflect what it actually costs to obtain the gas now an] in the Ge. Current rates are based on average costs where inexpensive "old" gas is "rolled in" with far more expensive new gas. Prices based on such average costs do not reflect the long-or short-run incremental costs of gas and in that sense mislead all consumers and encourage them to over-use the resource. To make up the revenue requirements lost on the life-line quantities, rates will have to be raised above the proposed average rates on larger residential, commercial, and industrial use. This will move them toward the long-run incremental cost-based prices which would more accurately guide consumption. (Emphasis added)

Thus such a rate structure could be justified on equity, efficiency, and resource conservation grounds. [lades would be based on costs, long-run incremental costs, and ability to pay. (Exh. DD, pp. 22-23)

Under cross-examination regarding the conservation Lion efficiency of lifeline rates, Dr. Power responded:

It involves raising the prices of natural gas to something representing the marginal costs of gas. It so happens that it is the large user whose rates are currently the mos L below the marginal costs of gas . And so, coincidentally it involves the raising of prices of- the largest consumers of natural gas. It is not to go out and beat the biggest boys over the head, but it is to try to charge marginal cost prices or provide marginal cost type signals to all users of the commodity. (Tr. 462-463)

See also Finding 16 in which Dr. Power compares the conservation potential of his volumetric based lifeline with the proposed rate design.

I feel strongly that relative to the traditional role in average costs method or structure of natural gas rates the type of rate structure that I propose definitely has advantages in terms of efficiency.

The not effect of marginal pricing associated with a lifeline rate would encourage patterns of consumption which in the long run would lead to a more efficient natural gas utility. (Tr. 411-412)

Dr. Power quoted with approval from a Public Utility Fortnightly article: "a properly designed lifeline proposal is not only in harmony with an incremental cost-based rate structure but is also virtually required by the internal consistency requirements of such a pricing mechanism." (Exh. E.E., p 12) Dr. Power continued:

"Proper design" includes targeting the reduced rates toward those with relatively inelastic demands or lowering average rates while not changing marginal rates by making lump sum reductions in rates. This sort of design eliminates the "distortion" Dr. Wilson is worried about.

Thus a lifeline is not (as Dr. Wilson claims on p.43-44) "a contrivance which would serve to further undermine the attainment of efficiency." It is a cost-based rate reform designed to pursue economic and social objectives in a way which corrects existing distortions in the pricing system which minimizing new ones. (Exh. EE, p. 12)

Finally, Mr. Power challenged the basic contention of lifeline opponents that the rate design which he proposed resulted in a subsidy.

Q. Why have you put terms such as "subsidy" and "cost of lifeline" in quotation marks in this direct testimony?

A. In my earlier direct testimony I pointed out that current cost-allocation models used by MPC do not and cannot determinantly distribute costs on a causal basis. It is not logically, possible to say "residential users caused a cost of X dollars to be incurred." Thus raising rates on larger users to more accurately indicate long-run incremental costs while lowering average rates paid by small users cannot be said to involve the larger users subsidizing the smaller users. The large users are being charged an accurate price, and prevention of excess monopoly profits to the utility require excess revenues to be rebated to someone. Inelastic small consumers, may of whom are also low-income, are an appropriate target group. (Exh. EE, p.13

41. Dr. J. W. Wilson did not support the "lifeline" approach advocated by Dr. Power. Dr Wilson did, however, evaluate the general concept in a manner designed to provide guidance to appropriate techniques in order to minimize any price distortions if the Commission chose to adopt a so-called lifeline. He conclude that lump sum transfers tended to minimize any distortion.

In a rate structure based on marginal costs, this approach would leave intact the marginal price signals that partly determine the customer's decision of how much and when to consume utility service. Most important, each subsidized customer would still face cost based rates and still have the incentive to consume at a level reflective of his assessment of the relative values of marginal cost and marginal energy use. (Exh. X, pp. 37, 38)

Dr. Wilson in fact proposed an alternative volumetric rate design with no customer charge based upon that logic.

The Commission may properly determine that the full cost of service should be recouped through a volumetric energy charge rather than recovering some portion of the revenue requirement through system charges in this case in view of the fact that such an approach produces an energy rate more nearly approximating the marginal cost of incremental gas supply. This ``ill tend to encourage more efficient energy use in conformance with sound economic policy and energy conservation objectives.

While this approach shifts customer-related costs to energy charges, it can be economically justified, given the special circumstances of the gas supply industry, in that (a) the resulting energy charges are still below the marginal cost of incremental gas supply and (b) serious misallocations are not likely to result from customer charges below customer costs due to the relatively low-demand elasticity associated with customer charges. (Exh. X, pp. 58-59)

Dr. Power in rebuttal testimony makes a similar observation.

8. He [Dr. Wilson] argues, as I do, that gas should reflect the marginal cost of incremental 'supply and that rates based on MPC's cost of past service and on rolled-in prices will not reflect these costs. Raising rates above
those indicated by these conventional methods would make economic sense.

Dr. Wilson takes a step in this direction', on the same basis I do, by reducing charges where it is least likely to lead to distorted (increased) consumption behavior.' He points out that the sensitivity of consumption to changes in the customer charge is very low. This, given the fact that these charges fall most heavily on small residential consumers, is similar to my argument that-incremental cost pricing requires reducing rates on small users whose demand is inelastic while raising the rates other users face. (Exh. EE. P.10)

Dr. Wilson concluded that the problems of the poor cannot be effectively addressed through utility rate design.

[P]overty is a critical social and economic issue which is not in any way unique to utility consumption. The problem is a general one which pertains equally (and precisely so at the margin) to all goods and services consumed by, the poor. It is a problem which should be dealt with directly and not through contrivances which would serve to further undermine the attainment of efficiency and overall well-being within an economic system where cost reflective prices are the central and indispensable motivational and disciplinary force. The alternative, to discard the market in favor of an imposed discretionary discipline and centrally directed operational economic frameswork, is a path which utilities and their regulators in most states are not yet well equipped to travel. (Exh. X, pp. 43-44)

42. Dr. Paul Polzin was retained by Applicant to examine the impact on Montanans of institutin3 a "lifeline" rate structure for natural gas. In his prepared rebuttal testimony to the residential lifeline proposal of Dr. Power, he summarized his findings:

First, not all Montanans are served by natural gas; roughly 25 to 30 percent of the occupied housing units in the state do not use natural gas. Further, the areas without natural gas appear to have a disproportionate number of low-income persons.

Second, here in Montana, there appears to be little correlation between a household's income and its use of natural gas. The consumers of small quantities of natural gas -- the beneficiaries of a "lifeline" rate structure -- include many households Wi01 relatively high income. Conversely, low-income households account for a significant portion of the customers using relatively large quantities of natural gas.

Finally, a "lifeline" rate structure may lead to higher prices, increased taxes, or reduced government services, and will have impacts throughout Montana's economy. Further research is needed to determine whether the gains outweigh the losses for low-income persons. (Exh. 59, pp. 2-3)

Dr. Polzin concluded with this recommendation:

The unavailability of natural gas to some low-income households, the absence of a clear relationship between income and natural gas usage, the potential for adverse impacts of imposing the "lifeline" revenue deficiency on the other customers and customer classes, and the possibility that there may be no net gain to low-income consumers, lead me to recommend that a "lifeline" structure should not be adopted in this proceeding. (Exh 59, p. 27)

43. Similar criticisms were presented by Dr. Phillips (Exh. 57, pp.10, 13, 14, 18). Dr. Phillips preferred that assistance low-income consumers arise from the Legislature, which has more options, rather than the utility regulatory authority. Based upon the presumption that the "1ifeline" proposal of Dr. Power is intended to provide relief to low income consumers, Dr. Phillips concluded:

No lifeline rate proposal without a means test, will provide the desired rate relief to low income customers. Such a rate, further, will result in internal subsidization, that is, higher rates to some customers.

Dr. Phillips quoted with approval Dr. Wilson's conclusion (Finding 41).

44. Dr. Power readily conceded the shortcomings of the "lifeline" Proposal as it dealt with the problems of low income consumers (Exh. EE, p.13).

Q 11. Then you are not recommending a lifeline rte only or primarily because it offers relief to low-income individuals.

A 11. No . As argued above and in my direct testimony, a lifeline rate is justified on efficiency (cost), conservation, and monopoly-profit-regulation rounds. It also would help many (but by no means all) low-income households. The latter is on added feature which makes it attractive on equity grounds. But even if one did not care at all about low-income individuals or if there was little or no correlation between income and natural gas consumption, incremental cost pricing and the inverse elasticity rule might well lead to a lifeline-like rate structure. (Exh. EE., p.13)

45. From the record in this proceeding the Commission finds that the collective testimony of witnesses demonstrates that the objectives of conservation, efficiency and equity are prompted in the long run by rates based upon marginal costs. Furthermore, the Commission finds justification for instituting a seasonally differentiated or "lifeline" provision for basic natural gas service.

46. The commission regards the seasonal discount and the lump sum transfer as alternative devices with which to address the objective structuring rates to induce conservation, minimize dislocations, and produce affordable minimum service. The commission's preference is the seasonal discount rate. The commission concluded that a lump sum discount might mislead consumers as to the actual prices being paid for gas and therefore could obscure the signal associated with price. Also a lump sum payment would produce bills of zero for consumers who actually used small amounts of gas. The Commission regards service without cost as inappropriate.

47. The commission finds that the four months of December, January, February, and March embrace the severe winter period and represent a modest but appropriate interval during which a seasonal discount should be in effect.

48. Certain additional modifications respecting application of the newly established methodology are found to be appropriate.

(a) The seasonally differentiated rate or "lifeline" should be confined the newly constituted FIRM class. Equity requires that the lifeline discount should be available uniformly to all customers of this class rather than to a subclass of "residential" users. Examination of the Applicant's historic cost of service study reveals that the former-commercial and public authorities classes yielded rates of return below that of either the system average of the former residential class (Exh. 63, Sch. 5) Therefore to the extent that the lifeline discount results in increased rates to these former classes, such increases are appropriate.

(2) The revenue short fall associated with a seasonal discount in the FIRM class should not be spread to the utility or interruptible classes. This limitation reflects the Commission's sensitivity to the issues of alternative fuel prices, loss of industrial market and the non-traditional fixed costs associated with the take or pay contracts. Further more the commission recognizes that a separate proceeding has been instituted to address in depth the long term supply demand and pricing aspects of natural gas service.

Gas Cost Adjustment Clause

Testimony and Analysis

49. The Applicant, through its witness Mr. Heidi, has requested approval of a gas tracking adjustment clause and a new method for reporting of gas costs to the Commission. According to Mr. Heidi, this method "would reflect the total sources of gas supply and their total average method A would reflect the total sources of gas supply and their total average cost, including storage and the associated market." Mr. Heidi further explained that "the cost of gas supply for each customer class would be compared to the gas cost allowed in this docket in order to determine the upward or downward adjustment to the total rate to be charged for service." (Exh. 31, pp.20-21)

50. In support of the gas cost adjustment clause and the new methodology, Mr. Heidi stated that the proposal would help to promptly reflect periodic gas cost increases without an undue procedural burden on the commission; that it would moderate the impact of large increases which can follow from deferral of recovery until major rate cases are filed and approved; and that it would better track system gas cost changes. (Exh. 31, pp. 18-21)

51. The consumer counsel objected to the gas cost adjustment clause on the grounds that it was an automatic adjustment procedure, and therefore contrary to law, and because it lacked specificity as to how it would be applied (TR. 271)

52. The Commission finds the Counsel's objection to be without merit . Mr. Heidi specifically and repeatedly stated that the proposed procedure would be subject to approval by the Commission. The Commission has consistently held hearings on gas cost adjustment proceedings similar to those contemplated by the Montana Power proposal and has done so based on its interpretation that automatic adjustment clauses are prohibited by Montana statute.

53. The Commission finds that the gas cost adjustment procedure and the methodology proposed by Mr. Heidi are appropriate for the reasons outlined in his testimony. The commission particularly approves of the proposal to consider total gas costs rather that incremental increases.

The commission however, does not find it necessary to include the cost of gas adjustment clause in the tariffs.

The Anaconda Company's

Objection and Motion to Strike

54. During the course of the hearing, the Anaconda Company objected to and moved to strike Dr. Wilson's testimony relating to cancellation of Canadian gas contracts. (Tr. 230) Stauffer Chemical joined in the motion. In support to the objection and motion, Anaconda claimed that

the subject was "outside the issues formed by the petition and procedural rules" and therefore deprived parties of the opportunity to respond.

55. The objection and motion are overruled. The Commission finds Dr. Wilson's testimony regarding Canadian contracts relevant to the issues in this case. Several witnesses, including Mr. Lanou, on behalf of the Anaconda Company, discussed issues relating to gas supply and demand. The status of Canadian gas, and therefore the terms under which that gas is purchased, are a vital part of any such discussion.

56. Although Dr. Wilson's testimony was relevant, the Commission does not believe that it is adequate by itself to serve as the basis for any decision in this docket.

CONCLUSIONS OF LAW

1. The Montana Power Company (Applicant) is a public utility furnishing electric and natural gas service to consumers in the State of Montana.

2. This commission has jurisdiction of the rates and charges for and the conditions under which utility service is rendered in Montana.

3. The commission acts in its legislative capacity when it allocates utility costs to the various customer classes.

4. In establishing a rate structure the Commission may take into consideration both cost factors and non-cost factors.

5. The objectives of conservation, efficiency and equity are promoted by the rate structure approved in this order.

6. The rate structures authorized by the commission, based upon analysis of the entire record, are just, reasonable and not unjustly discriminatory.

ORDER

THE MONTANA PUBLIC SERVICE COMMISSION ORDERS THAT:

1. The Montana Power company shall file revised rate schedules for the following customer classes: firm, Interruptible and Utility.

2. The Montana Power company shall file tariffs for the firm class which incorporates a 25%discount for the first 15 Mcf of gas used in each billing period for the months of December, January, February and March.

3. The increased natural gas revenues authorized in Order No. 4521a shall be distributed to the class of service named in Ordering paragraph 1 in accordance with the methodology outlined in Findings of Fact 37 and 48b.

4. All motions and objections not specifically ruled upon the hearing are denied.

5. The Montana Power company shall continue to file monthly reports of its sources of natural gas supply, and the prices at which this supply is obtained.

DONE IN OPEN SESSION this 9th day of November, 1979, by a vote of 5-0

BY THE ORDER OF THE MONTANA PUBLIC SERVICE COMMISSION.

GORDON E. BOLLINGER, Chairman

CLYDE JARVIS, Commissioner

THOMAS J. SCHNEIDER, Commissioner

JAMES R. SHEA, Commissioner

GEORGE TURMAN, Commissioner

ATTEST:

Madeline L. Cottrill

Secretary

(SEAL)

NOTE: You are entitled to judicial review of the final decision in this matter. If no Motion for Reconsideration is filed, judicial review may be obtained by filing a petition for review within thirty (30) days form the service of this order. If a Motion for Reconsideration is filed, a commission order is final for purpose of appeal upon the entry of ruling on that motion, or upon the passage of ten(10) days following the filing of that motion of the Montana Administrative Procedure Act, esp. sec. 2-4-702, MCA; and commission Rules of Practice and Procedure, esp. 38-2-2(61)-P2750 ARM.